| Exhibit R-2, RDT&E Budget Item Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3 | **R-1 ITEM NOMENCLATURE:**<br>Counterproliferation Support 0603160BR |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|---|
| Total 0603160BR Cost | 162.6 | 80.4 | 76.3 | 81.8 | 97.5 | 103.4 | 105.4 | 107.4 |
| Project BB – Small Business Innovative Research | 0 | .9 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Project BJ – SOF Counterproliferation Support | 17.2 | 22.8 | 23.3 | 18.8 | 23.1 | 19.3 | 19.7 | 20.1 |
| Project BK – Counterforce | 70.4 | 56.7 | 51.9 | 61.9 | 73.3 | 83.0 | 84.6 | 86.2 |
| Project BN - Unconventional Nuclear Warfare Defense | 75.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**A. Mission Description and Budget Item Justification:**

- The proliferation of nuclear, biological, and chemical weapons and their means of delivery (NBC/M) continues to pose a grave threat to national security. The U.S. requires counterproliferation (CP) counterforce capabilities to neutralize this threat. To accomplish this counterforce mission, the U.S. must be able to identify, characterize and defeat NBC/M research, production, storage, operations and support, and command and control facilities while mitigating collateral hazards resulting from release and expulsion of NBC agents. The potential target set includes fixed, aboveground and underground, hardened and unhardened facilities, as well as transshipment and delivery systems.
- Programs funded through this program element develop, demonstrate, and transition CP counterforce technologies to combatant commands and the Services. The programs are structured to exploit ongoing DoD agency, Service laboratory, and Department of Energy laboratory technology programs wherever possible. The program emphasis is on functional kill as well as hard kill and on mitigating collateral effects. The goal is rapid development of enhanced counterforce mission capabilities to include, but not limited to, advanced conventional and non-conventional (non-nuclear) weapons, application of sensor technologies to provide weapons of mass destruction (WMD) combat assessment, and target-attack planning tools to optimize weapon and sensor employment.
- In addition to counterforce missions, the U.S. requires the capability to defend WMD attacks, particularly the most unsettling and dangerous threat--that of nuclear terrorism using unconventional methods (i.e., delivery of an Improvised Nuclear Device (IND), Radiological Dispersal Device (RDD) or an actual nuclear weapon by other than missile or military aircraft). The Congressionally-mandated Unconventional Nuclear Warfare Defense (UNWD) program supports this effort by demonstrating an integrated nuclear warfare protection system at the four test-beds established for this purpose. The Unconventional Nuclear Warfare Defense program is a new start since the previous President's Budget Submission.
- Prototype or modified systems integrating these capabilities will then be evaluated in demonstrations--those having military utility transition to a Service for acquisition, and, in some cases, a residual operational capability is provided to combatant commanders. These programs have been grouped into three projects, Special Operation Forces (SOF) Counterproliferation Support (Project BJ), Counterforce (Project BK), and Unconventional Nuclear Warfare Defense (Project BN).

- Starting in FY 2003, the planned milestones will be grouped by program instead of product types to provide a clearer link to the programs included in this program element.

**B. Program Change Summary:**

| ($ in Millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| **Previous President's Budget** | **89.7** | **77.4** | **75.3** | **86.6** |
| **Current President's Budget** | **162.6** | **80.4** | **76.3** | **81.8** |
| **Total Adjustments** | **72.9** | **3.0** | **1.0** | **-4.8** |
| **Congressional program reduction** | | | | |
| **Congressional recissions** | | **-1.3** | | |
| **Congressional increases** | **75.0** | **5.0** | | |
| **Reprogramming** | **-2.1** | | | |
| **SBIR/STTR Transfer** | | | | |
| **Internal Transfer (DoD Defense-Wide)** | | **-.7** | **3.8** | **-1.8** |
| **Internal Transfer (Within DTRA)** | | | **-2.8** | **-3.0** |

**Change Summary Explanation:**

- The increase of $72.9M to the FY 2002 column from the previous President's Budget Submission to the current President's Budget is the result of two actions.
  - Congress directed and funded the Unconventional Nuclear Warfare Defense (UNWD) program in the amount of $75M. These funds currently reside in project BN.
  - Funding in the amount of $2.1M was reprogrammed from this program element through a below-threshold reprogramming action to support the Agency's Small Business Innovative Research program.
- The net increase in FY 2003 from the previous President's Budget to the current President's Budget is the result of Congressional and Departmental action. Congressional increases to this program amounted to $5M ($5M DERF-Anti-Biological Weapon Defeat Support). Congressional recissions amounting to $1.3M (-$.7M Section 8100–Business Process Reform/Management Efficiencies, -$.2M Section 8109-Reduce Cost Growth of Information Technology Development, and -$.4M Section 8135-Revised Economic Assumptions). The Department also transferred $.7M from this program as part of an OMB inflation adjustment.
- The differences in FY 2004-2005 from the previous President's Budget to the current President's Budget is the result of several Departmental actions as well as internal actions by DTRA. The Department provided DTRA with $5M in FY 2004 in support of DERF requirements. In addition, the Department also transferred $1.2M in FY 2004 and $1.8M in FY 2005 from DTRA to other DoD elements as part of the revised Non Pay Purchase Inflation adjustments. DTRA's internal transfers reflect a carefully balanced program focused on safeguarding America's interest from WMD by

controlling and reducing the threat by providing quality tools and services for the warfighter. Accordingly, resources have been reprogrammed to support critical requirements across the spectrum of combat support, technology development, threat control, and threat reduction mission areas.

- The resulting program provides for a flexible combat support structure; focused science and technology investments, to include such critical areas as WMD target defeat and nuclear weapons effects technologies; enhanced consequence management capabilities; force protection, infrastructure protection and dual-use homeland security initiatives; as well as the streamlining and transformation of the supporting business practices and workforce.

**C. Other Program Funding Summary:** see Exhibit R-2a

**D. Acquisition Strategy:** N/A

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BB – Small Business Innovative Research |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|---|
| Project BB – Small Business Innovative Research | 0 | 0.9 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |

**A. Mission Description and Budget Item Justification:**

- This project provides the means for:
  - stimulating technological innovation in the private sector
  - strengthens the role of small business in meeting DoD research and development needs
  - fosters and encourages participation of minority and disadvantaged businesses in technological innovation
  - increases the commercial application of DoD supported research and development results.
- These efforts are responsive to PL 106-554.

**B. Accomplishments/Planned Program:**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Small Business Innovative Research (SBIR) | 0 | 0.9 | 1.1 | 1.1 |

**FY 2002 Accomplishments**

- Supported the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

**FY 2003 Plans**

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

**FY 2004 Plans**

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers:** None

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BJ – Special Operations Forces (SOF) Counterproliferation Support |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|---|
| Project BJ – SOF Counterproliferation Support[1] | 17.2 | 22.8 | 23.3 | 18.8 | 23.1 | 19.3 | 19.7 | 20.1 |

1 FY 2001 DERF Supplemental provided $15.7M related to this project. Funding is not reflected in this table.

**A. Mission Description and Budget Item Justification:**

- In 1995, the SECDEF assigned the core task of countering the proliferation of weapons of mass destruction (WMD) to SOF.
- This project directly supports SOF contributions to the nation's effort to counter the spread of WMD.
- Efforts in this project include:
  - the defeat of hard and deeply buried targets (HDBT)
  - explosive ordnance disposal (EOD)
  - maritime efforts to prevent the spread of WMD technology
  - SOF sponsored Advanced Concept Technology Demonstration (transferred to Project BK in FY 2003)
- Details of this program have been classified per CJCSM 5225-01 dated 23 Oct 1996.

**B. Accomplishments/Planned Program:**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| SOF Counterproliferation Support | 17.2 | 22.8 | 23.3 | 18.8 |

**FY 2002 Accomplishments**

- Specific details are classified.

**FY 2003 Plans**

- Specific details are classified.

**FY 2004 Plans**

- Specific details are classified.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers :** FY 2002 funds in the amount of $14.2M and FY 2003 funds in the amount $14.3M have been sent to the United States Special Operations Command (USSOCOM) which is located in Florida. USSOCOM will manage the special operations force counterproliferation projects as executive agent for DTRA. Anticipate funding to be obligated by 30 September 2002 and 30 September 2002 respectively.

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BK – Counterforce |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|---|
| Project BK – Counterforce[2] | 70.4 | 56.7 | 51.9 | 61.9 | 73.3 | 83.0 | 84.6 | 86.2 |

2 FY 2001 DERF Supplemental provided $5.2M related to this project. Funding is not reflected in this table.

**A. Mission Description and Budget Item Justification:**

- The purpose of this project is to develop technologies, demonstrate prototype systems in an operationally realistic environment, support operators in the definition of the concept of operations, and provide combatant commanders with enhanced capabilities in response to potential adversaries who have the capability to develop and/or employ nuclear, biological and chemical (NBC) weapons of mass destruction (WMD) in future regional conflicts involving the U.S. or its allies. The U.S. requires the capability to attack and neutralize NBC research, production, storage, operations and support, and command and control facilities while mitigating collateral effects resulting from expulsion and release of NBC agents. The potential target sets include fixed, mobile and relocatable, aboveground and underground, hardened and unhardened, and tunnel facilities. The project is structured to exploit ongoing technology programs wherever possible. The project emphasis is on functional kill as well as hard kill and on mitigating collateral effects through advanced weapon development and greatly enhanced target attack planning to optimize weapon employment. The goal is the development of an enhanced counterforce mission capability to include rapid response and penetrating weapons, WMD combat assessment, and the supporting planning tools. Prototype or modified systems integrating these technologies will then be evaluated in demonstrations, and, in some cases, a residual operational capability is provided to combatant commanders.
- This project emphasizes technology demonstrations to include Advanced Technology Demonstrations (ATD) and Advanced Concept Technology Demonstrations (ACTD). The following programs are currently planned: the Second Counterproliferation (CP2) Counterforce ACTD, the Agent Defeat Demonstration, Biological Combat Assessment System (BCAS), SOF Warrior, Advanced Notice ACTD, the Target Defeat (TD) C3I Demonstration, the Thermobaric ACTD, the Standoff High-Speed Option for Counterproliferation (SHOC) (a proposed ACTD), WMD Planning Capability, and the CP Analysis and Planning System (CAPS). Essentially all funds added in this Project, as a result of the Secretary of Defense Strategic Review in FY 2002, are being used to demonstrate technologies identified in the Hard and Deeply Buried Target Defeat (HDBTD) Science & Technology Master Plan. These programs are described in the following paragraphs:
- The CP2 ACTD objective is to develop, demonstrate, and deliver enhanced standoff, counterforce capabilities in conjunction with operational concepts to combatant commanders for planning attacks and timely, reliable defeat of WMD related facilities while minimizing collateral hazards. The CP2 ACTD depends on technology base and products in PE 0602715BR and PE 0602716BR, Projects BD for planning tools and test planning and execution support, and Projects BE for the operational demonstrations. The Navy and Air Force are both participating in weapons and WMD combat assessment system development for the ACTD. The CP2 ACTD has been approved by Deputy Under Secretary of Defense for Advanced Systems and Concepts DUSD(AS&C), and the management plan was signed April 21, 1999. USEUCOM is the operational sponsor with USJFCOM and USSTRATCOM participating. The CP2 ACTD started in FY 1999 and will be completed in FY 2003.
- The Agent Defeat Demonstration is a joint effort with the U.S. Air Force. The objective is to demonstrate and transition an enhanced capability to defeat biological weapons, along with obtaining collateral effects test data and enhancing target planning tools with this data. The program started in

FY 2002. This program responds to the 1994 U.S. Air Force Mission Need Statement for Agent Defeat Weapons. The current payload being developed is called Prompt Agent Defeat (PAD). Agent Defeat depends on the technology base PE 0602715BR and PE 0602716BR, Project BD for weapons phenomenology.

- Biological Combat Assessment System (BCAS) leverages the development work completed and demonstrated for the Chemical Combat Assessment System in FY 2003. BCAS is a new start in FY 2004 and will demonstrate a biological assessment capability that supports CP counterforce missions.

- Standoff High Speed Option for CP (SHOC) is a joint effort with the Navy. This project develops the warhead and target response models for WMD targets. This project starts in FY 2003 and is proposed for an ACTD in FY 2004.

- Special Operation Forces (SOF) Warrior develops specialized SOF technologies and equipment prototypes to detect, disable and render safe and recover critical components from WMD devices in non-permissive and time-sensitive environments. This effort starts in FY 2003.

- WMD Planning Capability develops and demonstrates planning tools to support combatant commanders during exercises an actual operation. This effort transferred from PE 0602715BR in FY 2003.

- The Advanced Notice ACTD has been transferred from Project BJ in FY 2003 to demonstrate enhanced capabilities for the customer, USSOCOM. Advanced Notice integrates existing and developing technologies to produce SOF-focused capabilities for counterproliferation operations against biological warfare production, storage, and weaponization facilities. The objective is to provide to the Geographic Combatant Commander/USSOCOM capabilities, adaptable to other areas of responsibilities (AORs), for counterproliferation activities in response to a country's BW program. The ACTD acts as a forcing function across DoD to develop Joint Doctrine, focusing on SOF capabilities, for counterproliferation of biological warfare infrastructure not vulnerable to attack by conventional forces. Details of this program have been classified per CJCSM 5225-01, dated 23 Oct 1996.

- The TD program objective is to develop and demonstrate end-to-end capabilities for the functional defeat of hard targets, particularly tunnels, and assess developing weapon and sensor concepts against such targets. The program does not develop new sensors; it assesses existing or emerging technologies being developed by others. The TD program develops technologies under PE 0602715BR and PE 0602716BR, Project BF and transitions them to this program for demonstration. The demonstrations require test planning and execution support from PE 0602715BR, Project BE, or from PE 0602716BR starting in FY 2003. The currently planned TD C3I Demonstration ends in FY 2003. TD customers are USPACOM, USSTRATCOM, USSOCOM, and the Air Force's Air Combat Command.

- The Thermobaric ACTD will develop a weapon concept that is based on a new class of thermobarics. Thermobarics include a broad range of high-energy density materials that are capable of producing high temperatures ("thermo") and high pressures ("barics") for extended periods of time. This technology develops the potential for producing sustained, distributed damage in hard targets. The weapon could be used against certain type of tunnel targets for a maximum functional kill of the tunnels. Prototype weapons will be tested under operational conditions for their performance, and leave-behinds will be delivered to the customer.

- The Counterproliferation Analysis and Planning System (CAPS) program responds to the need for a comprehensive and timely counterproliferation (CP) target planning tool to assist combatant commanders in the conduct of their Concept of Operations Plan (CONPLAN) 0400 targeting responsibilities. Products from CAPS include end-to-end descriptions of country specific Nuclear, Biological, Chemical, and Missile (NBC/M) programs of proliferation concern. The analysis provides combatant commanders highly detailed assessments of a country's NBC/M programs, and proliferation pathways, and identifies the critical nodes and key facilities that, if eliminated, would cause the greatest impact to that program. This information will directly support the combatant commanders in the planning and execution of their CP missions. These analyses are conducted in successive levels of detail, identified as Level 1-5 analysis, with Level 1 having the lowest analytical detail and Level 5 the highest. As an output of the analyses, CAPS will provide CP target planners with the critical data elements needed to take effective action against the NBC/M programs of proliferating countries, and will also predict whether there will be environmental consequences (hazards) produced by these actions.
- There are five major aspects of the CAPS program:
  - The integration of intelligence and NBC/M production process analyses to create highly-detailed models of the proliferation efforts underway in selected countries, identifying the specific function and location of the major production sites, and developing detailed layouts of these sites within each country.
  - Element analyses of each country model to select the critical nodes in the country's proliferation pathway. Critical nodes will include those facilities essential to research, production, weaponization, and storage, which if eliminated, would require extended time to replace and significantly degrade the NBC/M program being analyzed (Level 1-3 analysis).
  - Conduct highly detailed inside-the-building analysis necessary for the employment of precision-guided munitions or special operations forces (Level 4-5 analysis).
  - The execution of consequence analyses to determine and to quantify the level of damage that might occur as a result of potential interdiction/counterforce actions, to include: possible casualties, economic losses, and other environmental issues.
  - The completed CAPS analyses will be provided via secure means to the user community in a logical, user-friendly format incorporating the latest advances in computer software development. The Counterproliferation Mission Support Senior Oversight Group and its Requirements Subcommittee, comprised of OSD, JCS, and CINC J-2/3/5 representatives have identified 45 NBC/M programs in 16 different countries as the requirements basis for CAPS analysis.

- The planned programs provide products in five areas: WMD combat assessment, collateral effects prediction, target response, weapons, and operational demonstrations. These product areas are described in the following paragraphs:

- **WMD Combat Assessment.** This product area has evolved from the former (completed in FY 1998) Counterproliferation 1 (CP1) ACTD sensor product area to provide WMD combat assessment capabilities. Product area efforts will provide improved warfighting capabilities against the spectrum of WMD-related facilities. These efforts will leverage existing programs to (1) evaluate near-term technologies; (2) define concepts of operation and system architecture for chemical combat assessment; (3) produce data fusion and mission planning modules to meet user requirements on existing platforms; and (4) integrate chemical and biological combat assessment capabilities onto delivery systems, such as unmanned air vehicle (UAV) and expendable mini-UAV platforms. Further, the effort will demonstrate the ability to confirm, identify, and assess the release of biological/chemical agents in support of attacks on NBC facilities and assist in predicting transport patterns by updating pre-strike predictions of the potentially hazardous plume with real-time data.

- The combat assessment product area will not develop its own sensors, but will leverage ongoing chemical sensor efforts within the chemical and biological defense community to minimize program risk for applying this technology to counterforce missions. In CP2, a Chemical Combat Assessment System (CCAS) will be demonstrated. The feasibility of a Biological Combat Assessment System (BCAS) is being studied in FY 2003. BCAS is an airborne Biological BDA capability that provides near real-time analysis to determine if a biological agent has been released following a counterforce attack on adversary biological production and storage facilities. The BCAS system is intended to transition to an ACTD program in FY 2004 under a phased program approach: Phase 1 (FY 2004-2005) – cloud standoff detection with point biological sample collection; Phase 2 (FY 2006-2007) – cloud standoff detection with point biological sample collection and identification; Phase 3 (FY 2008-2009) – cloud standoff detection and biological identification and with point biological collection and identification.

- **Collateral Effects Prediction.** The collateral effects effort provides predictive tools for a variety of applications supporting Nuclear, Biological and Chemical (NBC) target attack planning to include NBC expulsion and dispersion resulting from attacks on WMD facilities as well as acts of terrorism and hostile use of WMD. Requirements include high-resolution weather models, weather measurement systems, and population databases. A key element in developing these collateral effects codes is chemical/biological expulsion tests and modeling. Modeling of chemical/biological expulsion sources will be based on theoretical models and empirical data. Codes will be validated from existing data, other predictive models and special collateral effects experiments. The collateral effects tools will provide pre-attack prediction and post-attack assessment.

- The Hazard Prediction and Assessment Capability (HPAC) is a major product that predicts the release and transport of NBC materials and the subsequent collateral effects. The high-resolution weather prediction capability, another area of emphasis in the product area, will provide timely wind, cloud, and precipitation data necessary for more detailed NBC collateral effects predictions. These tools will also be integrated into the target attack planning tools to assess the consequences of attacks on WMD facilities.

- **Target Response.** This effort will provide a new target attack planning, combat assessment capability and a major upgrade for existing theater-level planning capabilities for defeating or denying NBC facilities and capabilities. This effort builds upon the Integrated Munitions Effects Assessment (IMEA) planning tool developed for CP1 ACTD. IMEA provides a forward deployable, target planning capability for NBC targets. IMEA is an integration of the Munitions Effects Assessment (MEA) tool providing targeting solutions using conventional weapons for a variety of structures and equipment and the HPAC developed under the Collateral Effects Prediction product area. The integrated capability supports the warfighters in the attack planning phase with target response and collateral effects prediction, and in the post-attack phase with combat assessment and re-strike decision support. Upgrades to IMEA for the CP2 ACTD include additional target types (including complex facilities), additional weapons as developed in the Weapons area below (including multiple weapon effects), additional platforms, more operator-friendly displays, more WMD material types, weather interfaces and sources, and more detailed weapon input parameters (such as angle of attack). The ultimate CP2 IMEA product will be able to run stand-alone or in a web-based client-server distributed architecture as it migrates into the Integrated Target Planning Tool Set (ITPTS) suite of tools, the second deliverable during CP2. The ITPTS will provide a spectrum of planning and assessment capabilities from deliberate to crisis. ITPTS provides the warfighter a standardized weaponeering framework that greatly increases weaponeering efficiency and fidelity while minimizing warfighter training requirements. It expedites cross service/coalition weaponeering and joint planning. The ITPTS architecture provides the warfighter with cross platform interoperability and a common look and feel, independent of weapon or target. In addition, it provides the warfighter critical decision support services for all target classes including those associated with weapons of mass destruction. ITPTS will also predict weapons performance and associated NBC collateral effects, develop targeting solutions that minimize collateral effects, and provide results through appropriate interfaces for a variety of targets including functionally and structurally complex facilities. ITPTS will provide an enhanced seamless interface to the Intelligence Community (IC) data sources. ITPTS will be the weaponeering segment in the Joint Targeting Toolbox (JTT) and provides the warfighter with targeting information in a JTT's "Electronic Target Folder" (ETF). This effort will execute a full verification and validation program, in accordance with the Joint Technical Coordinating Group for Munitions Effects (JTCG/ME) Procedures, for all delivered capabilities including extensive verification testing and operational and field testing at all functional levels.

- **Weapons.** This product area will develop, integrate and demonstrate advanced conventional weapons technologies to improve mission effectiveness against NBC targets while mitigating collateral effects. The focus for CP2 ACTD is to provide combatant commanders with a demonstrated option to attack NBC facilities in a standoff mode. This effort will improve on existing standoff weapon platforms to provide enhanced penetration and advanced fuzing developed during CP1. Standoff weapons to be enhanced include the Tactical Tomahawk in a penetrator variant and the Conventional Air Launched Cruise Missile (CALCM). An enhanced payloads project explores alternate warhead options to conventional blast/fragmentation with the objective of mitigating collateral effects associated with dispersal of NBC. Target Defeat (TD) will demonstrate non-conventional (non-nuclear) weapons to functionally defeat tunnels. TD weapons technology being developed includes advanced energetics (like thermobarics) and non-energetics for functional defeat of HDBTs. The proposed SHOC ACTD will develop and demonstrate a supersonic cruise missile system capable of rapidly destroying or functionally defeating/denying fixed WMD facilities as well as soft WMD facilities, including relocatable facilities, logistics systems, and delivery systems.

- **Operational Demonstrations.** This product area will improve the operational capability for holding NBC targets at risk with minimum collateral effects. The objective is to integrate available or near-term technologies for WMD combat assessment, weapons, collateral effects prediction, and target planning tools, to evaluate the technologies in an operational context, and to transition improved capabilities rapidly to combatant commands. Specifically, this product area will enhance and accelerate existing programs to provide integrated target planning, collateral effects prediction codes, a Chemical Combat Assessment System (CCAS) and advanced weapons to meet NBC target defeat requirements. This product area will also support demonstration operations to include system operational concept, demonstration planning, scenario development, execution of the demonstration, and post-demonstration analysis. Planning and execution of demonstrations use a time phased approach to screen candidate technologies for maturity, develop prototype systems and demonstrate enhancements in military capability against a combatant command prioritized subset of all potential NBC target types. This approach results in a cycle of prototype development and testing followed by periods of operational demonstration.

- Three operational demonstration series are planned for CP2 ACTD over the period of FY 2000-2003 to provide the operational sponsor, United States European Command, and participating commands with the opportunity to assess the utility of the selected technologies. The objective of the first demonstration series in CP2 ACTD, called Dipole Yukon (DY), is to demonstrate the capability to plan and execute chemical/biological (C/B) counterforce missions with the Joint Air-to-Surface Standoff Missile (JASSM) through operationally realistic attacks against a simulated biological weapons storage facility. The objective of the second demonstration, called Dipole Zodiac (DZ), is to assess the suitability of the CALCM with a penetrating warhead and a Predator unmanned air vehicle (UAV) based standoff collateral effects assessment system. The objective of the third demonstration series, called Divine Canberra (DC), is to evaluate the end-to-end set of products of the CP2 ACTD including the target planning tool, in its final operational context, the Tactical Tomahawk Penetrator Variant (TTPV), and remote combat assessment using a small expendable mini-UAV with a chemical point detector on-board (and deployed from the Predator UAV demonstrated in DZ) against a hard chemical production and storage facility.

- TD will conduct a functional defeat demonstration on a Command, Control, Communications, and Intelligence (C3I) tunnel facility using improved target planning tools and new weapon concepts. The currently planned demonstration ends in FY 2003.

- The Thermobaric ACTD will leverage existing concepts and work in energetic payload technology to weaponize, demonstrate, and deliver an improved weapon system for the functional defeat of tunnels targets. Three operational demonstrations are planned in FY 2005 against an operationally representative underground facility complex. The demonstrations will lead to a military utility evaluation conducted by the operational sponsors, United States Pacific Command and United States Forces Korea. The evaluation will assess the end-to-end ability of an improved weapon system to functionally defeat an underground facility complex.

**B. Accomplishments/Planned Program:**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| WMD Combat Assessment (CCAS/BCAS) | 9.1 | .5 | 2.3 | 11.2 |

**FY 2002 Accomplishments**

- Integrated FINDER mini-unmanned air vehicle (UAV) on Predator and flight test.
- Exercised Chemical Combat Assessment System (CCAS) Predator standoff system and mini-UAV point detector at Dipole Zodiac.
- Continued Divine Invader test series with integrated CCAS.
- Began training of operators on integrated CCAS.
- Began feasibility study for a Biological Combat Assessment System (BCAS).

**FY 2003 Plans**

- Complete Divine Invader test series with integrated CCAS.
- Complete Training of operators on integrated CCAS.
- Complete feasibility study for a Biological Combat Assessment System (BCAS).
- Complete Divine Canberra Demonstrations 1 and 2.
- Transition CCAS residuals to customer.

**FY 2004 Plans**

- Prepare CCAS for US Air Force System Development and Demonstration (SDD) program start in FY 2005.
- Support CCAS residuals and training programs.
- Begin Biological Combat Assessment System (BCAS) ACTD program, Phase 1.

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BK – Counterforce |

| Cost ($ in thousands) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Collateral Effects Prediction | 3.5 | Realigned | 0 | 0 |

**FY 2002 Accomplishments**

- Completed chemical source term validation testing for demonstration
- Delivered final hazard source models for CP2 ACTD standoff weapons
- Developed initial ensemble weather forecasting for planning tools
- Provided Hazard Prediction and Assessment Capability (HPAC) modules for Integrated Target Planning Tool Set (ITPTS) 2.0 to meet USEUCOM final product requirements
- Delivered and validated HPAC 4.1 for Dipole Zodiac and Dipole Yukon

**FY 2003 Plans (Realigned to CP2 ACTD)**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Target Response | 4.5 | Realigned | 0 | 0 |

**FY 2002 Accomplishments**

- Validated Integrated Munitions Effects Assessment (IMEA) 5.0 software to support Dipole Zodiac and Dipole Yukon 2 (JASSM).
- Delivered TTPV and CALCM weapon effects/performance models.
- Delivered ITPTS 2.0 that includes access to additional IC data sources and interface to other targeting tools through the Joint Targeting Toolbox (JTT) and Electronic Target Folder (ETF).
- Completed the first phase of the integration of WinJMEM into ITPTS, begin integration of the Joint Technical Group for Munitions Effects (TCG/ME) Air-to-Surface Weaponeering System (JAWS) into ITPTS.
- Continued IMEA C3I facility model validation testing.
- Performed sub-scale validation tests to support the CP2 full-scale operational tests.
- Began the IV&V of ITPTS 2.0 and submit the Accreditation Support Package (ASP) to the JTCG/ME for accreditation.
- Completed the integration of the JTCG/ME weaponeering product WinJMEM into ITPTS.
- Completed the IV&V of MEA 5.0 support the CALCM and JASSM demonstrations in CP2 ACTD and submit the Accreditation Support Package (ASP) to the JTCG/ME for accreditation.

**FY 2003 Plans (Realigned to CP2 ACTD)**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| CP Analysis and Planning System | 12.1 | 9.1 | 9.3 | 9.4 |

**FY 2002 Accomplishments**

- Completed the second round of Counterproliferation Analysis and Planning System (CAPS) analytical production on 30 September 2002:
  - Level 1-3 analysis on the remaining six CP Mission Support Senior Oversite Group (MS SOG) near-term country programs
  - Level 4 analysis of not less than 40 facilities
  - Level 5 analysis of a minimum of 5 facilities.
- Continued CAPSNET terminal installations at major commands, priority supporting commands, and support agencies; installations in advanced planning for FY 2002 are EUCOM (JAC), USFK (PACOM), DIA, WINPAC (CIA), and SOUTHCOM. Other potential CAPSNET installations for FY 2002 are JFCOM (CMSALANT/JFIC), EUCOM (Stuttgart/Ramstein), and potentially other supporting organizations.
- Upgraded SIPRNET connectivity to a full T-1 line with a 2nd T-1 line planned.
- Installed Joint Worldwide Intelligence Communications System (JWICS) CAPS server at Lawrence Livermore National Laboratory (LLNL), providing more up-to-date information than was currently available to CAPS users on JWICS.

**FY 2003 Plans**

- Initiate third CAPS production cycle, 01 October 2002 – 31 March 2003, with specific requirements to be determined by the CP MS SOG Principals, Requirements Subcommittee, and representatives of the combatant commands in coordination with the CAPS program managers.
- Further expand CAPS analysis in designated counties to support the Multi-Layered Analysis (MLA) work as identified by the Intelligence Community.
- Pursue hosting CAPSNET on JWICS using Secure Community of Interest (S/COI) Software. This will provide the full CAPS analysis, Level 1-5, and much easier access to the Intelligence Community and other JWICS users.
- Transition of CAPS data to a relational database to further enhance integration with intelligence databases and DoD modeling tools.
- Complete any remaining CAPSNET terminal installations.

**FY 2004 Plans**

- Initiate fourth CAPS production cycle, 01 April 2003 – 30 September 2004, with specific requirements to be determined by the CP MS SOG Principals, Requirements Subcommittee, and representatives of the combatant commands in coordination with the CAPS program managers.
- Further expand CAPS analysis in designated counties to support the Multi-Layered Analysis (MLA) work as identified by the Intelligence Community.
- Further expand the integration of CAPS analysis with DoD modeling capabilities to enhance deliberate planning.
- Expand CAPS users to US allies where deemed appropriate by the CP MS SOG Principles.

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Weapons | 10.9 | Realigned | 0 | 0 |

**FY 2002 Accomplishments**

- Conducted Tactical Tomahawk Penetrator Variant (TTPV) critical design review.
- Completed TTPV penetrator warhead design, fabrication, and test.
- Completed TTPV penetrator systems integration.
- Completed TTPV penetrator command and control modifications.
- Conducted TTPV penetrator payload system design, missile systems design and engineering, and air-vehicle modification design and fabrication.
- Conducted TTPV penetrator system test and evaluation.
- Completed design and effectiveness studies for the Hard and Deeply Buried Target Defeat (HDBTD) classified weapon concept.

**FY 2003 Plans (Realigned to CP2 ACTD)**

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Operational Demonstrations | 9.8 | 15.6 | .8 | .8 |

**FY 2002 Accomplishments**

- Conducted Dipole Zodiac (1 and 2) Conventional Air Launched Cruise Missile (CALCM) and Unmanned Air Vehicle (UAV) demonstrations and analyze results.

- Conducted Dipole Yukon 2 (JASSM) demonstration and analyze results.
- Initiated target refurbishment for Divine Canberra demonstration and Dipole Zodiac demonstrations.
- Initiated C3I demonstration for the HDBTD classified weapon concept.
- Developed testbed to provide necessary demonstration and validation capability for new hard and deeply buried target defeat technologies.
- Completed payload plan and weaponization plan for Thermobaric Weapon (TW) demonstration.
- Initiated integration of thermobaric payload material with weapon system and firing system.

**FY 2003 Plans**

- Conduct Midway Blue 1,2 and 3 demonstrations for the Advanced Unitary Penetrator.
- Complete target refurbishment for Divine Canberra and Dipole Zodiac demonstrations.
- Conduct Dipole Zodiac 2 demonstration for CALCM.
- Conduct Divine Canberra 1 and 2 demonstrations for TTPV, CCAS, and planning/analysis tools.

**FY 2004 Plans**

- Provide residual support to CP2 ACTD products.

| Cost ($ in thousands) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| CP2 ACTD | 0 | 13.8 | 0 | 0 |

**FY 2002 Accomplishments**

- Funding was not realigned to this subproject until FY 2003.

**FY 2003 Plans**

- Complete Divine Invader flight-testing of CCAS.
- Deliver and validate final version of HPAC incorporating CP2 ACTD hazard source models.
- Deliver and validate final version of IMEA incorporating CP2 ACTD weapons effects data.
- Deliver and validate final version of ITPTS incorporating CP2 ACTD requirements.
- Complete Divine Canberra (DC) demonstration and analyze results.
- Support USEUCOM's military utility assessment of all CP2 deliverables.

- Deliver residual capabilities to CINC sponsor, USEUCOM.
- Deliver and validate HPAC 4.1 for final ACTD demonstrations. This version increases functionality of planning tools not specifically addressed, such as industrial chemical and nuclear facilities
- Develop chemical source terms as required for demonstrations and planning exercises
- Train HPAC to Combatant Command staff personnel
- Complete TTPV penetrator payload system design, missile systems design and engineering, and air-vehicle modification design and fabrication.
- Conduct TTPV penetrator system test and evaluation.
- Conduct TTPV Flight Event Demonstrations.

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| WMD Planning Capability | 0 | 1.5 | 1.5 | 0 |

**FY 2002 Accomplishments**

- Funding and activities performed in Project BF are in PE 0602715BR.

**FY 2003 Plans**

- Produce Synthetic Exercise Environment (SEE) database and cartographic products for SHAPE Able Ally FY 2003 exercise.
- Implement SEE Atlantis digital terrain mapping enhancements for EUCOM.

**FY 2004 Plans**

- Produce SEE database and cartographic products for SHAPE Able Ally FY 2004 exercise.
- Continue Warfighter Planning Support (WPS) priority analytical support for combatant commands as coordinated by customers.

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BK – Counterforce |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Agent Defeat | 1.0 | 1.1 | 7.1 | 4.2 |

**FY 2002 Accomplishments**

- Initiated Prompt Agent Defeat (PAD) project.
- Started scale tests for agent neutralization.
- Completed four small-scale tests for agent neutralization.
- Initiated non-energetic agent defeat program-Classified.

**FY 2003 Plans**

- Completion of small-scale optimization for PAD.
- Begin Full-scale design for PAD weapon.
- Complete initial laboratory phase of non-energetic agent defeat program
- Begin standardized bioassay program.

**FY 2004 Plans**

- Full-scale demonstration of PAD weapon.
- Continue non-energetic agent defeat optimization/weaponization.
- Deliver modeling capability for PAD weapon.

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Advanced Notice ACTD | 7.4 | 8.5 | 8.0 | 6.0 |

**FY 2002 Accomplishments**

- Specific details are classified.

**FY 2003 Plans**

- Execute Final Demonstration in June 2003.
- Execute smooth transition of residuals that demonstrated military utility in the exercise.
- Further details are classified.

**FY 2004 Plans**

- Enhance capabilities identified in the demonstration.
- Initiate follow-on demonstration.

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| SOF Warrior | 0 | .9 | 4.5 | 8.5 |

**FY 2003 Plans**

- Complete SOF portion of C3I demonstration for the Hard and Deeply Buried Target Defeat (HDBTD) classified weapons.
- Perform Analysis of Alternatives (AoA)
- Identify and select specific technologies that will be pursued in Phase 1.
- Conduct operational assessment of selected candidate technologies by user/customers.
- Develop program plans and spend plans for the activity and each technical area
- Start specific kick-off meetings for technologies funded under each technical area
- Specific details are classified.

**FY 2004 Plans**

- Conduct individual technology testing
- Determine military utility assessment test protocol
- Conduct Integrated Project Reviews (IPR) for each technology
- Conduct second technology review and AOA
- Develop Early User Test and Evaluation (EUT&E) test bed
- Specific details of individual technologies will be SECRET SPECAT

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| HTD C3I Demonstration | 0 | 2.0 | 0 | 0 |

**FY 2003 Plans (NEW)**

- Complete C3I demonstration for the HDBTD classified weapons.

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Thermobaric ACTD | 12.1 | 2.7 | 12.4 | 8.0 |

**FY 2002 Accomplishments**

- Initiated construction of full-scale underground facility target complex at White Sands Missile Range (WSMR).
- Completed a feasibility study for alternative warhead case designs.
- Completed small-scale bombproof testing of explosive candidates.

**FY 2003 Plans**

- Develop Thermobaric explosive models to support mission planning/analysis tools.
- Conduct sub-scale testing of Thermobaric explosive candidates.
- Complete construction of full-scale underground facility target complex.
- Conduct full-scale validation testing.
- Complete warhead design and fuze integration evaluations.

**FY 2004 Plans**

- Conduct weapon qualification tests
- Initiate weapon flight qualification testing.
- Develop weapon modules for mission planning/analysis tools.
- Produce test assets for TB ACTD Operational Demonstration (DISCRETE FORTUNA).

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BK – Counterforce |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Standoff High-Speed Option for Counterproliferation (SHOC) | 0 | 1.0 | 6.0 | 13.8 |

**FY 2003 Plans**

- Initiate Standoff High-Speed Option for Counterproliferation (SHOC) project.
- Conduct Military Utility Study of SHOC concept.
- Develop and release request for proposals for ACTD.

**FY 2004 Plans**

- Initiate ACTD
- Award contract (s) for SHOC system development.
- Conduct program kickoff meetings with ACTD performers.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers:** Over $12M of FY 2002 funding was provided to the Navair Program Executive Officer. This funding was ultimately placed on contract with Raytheon Missile Systems Co., in support of the Tactical Tomahawk Penetrator Variant program.

| Exhibit R-2a, RDT&E Project Justification | Date: February 2003 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>RDT&E, Defense-Wide/Advanced Technology Development - BA 3<br>0603160BR | **PROJECT NAME AND NUMBER:**<br>Project BN – Unconventional Nuclear Warfare Defense |

| Cost ($ in millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|---|
| Project BN – Unconventional Nuclear Warfare Defense | 75.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**A. Mission Description and Budget Item Justification:**

- The terrorist attacks of September 11, 2001 vividly demonstrated the need to expand the U.S. efforts to develop and field systems that can defend against threats posed by Weapons of Mass Destruction (WMD). One of the most unsettling and dangerous threats to the U.S. homeland is the possibility of nuclear terrorism using unconventional methods (i.e., delivery of an Improvised Nuclear Device (IND), Radiological Dispersal Device (RDD) or an actual nuclear weapon by other than missile or military aircraft). In July 2001, the Defense Science Board (DSB) Task Force Report on Unconventional Nuclear Warfare Defense further elaborated on this increasing threat to the U.S. To defend against this threat, Congress commended the DSB report and directed the Unconventional Nuclear Warfare Defense (UNWD) program and funds to restore the historic balance between operational needs and sustaining R&D investments within the nuclear search arena in the FY 2002 DoD Appropriation. The UNWD program is designed to develop a prescribed list of equipment and procedures for a series of systems that can detect, give early warning, and establish a successful response to an unconventional nuclear warfare (UNW) attack. At its end state, the program's equipment list and procedures will be rapidly transferable to other interested Federal, State, local or private organizations to provide such protection to their critical sites. This list and procedures will be developed through a rigorous series of experiments, demonstrations and red-teaming processes at four test-beds. UNWD, as authorized, is a joint DTRA-NNSA program directed to demonstrate integrated nuclear warfare protection systems at the four test-beds established for this purpose. The Terrorist Device Defeat (TDD) program is being used to restore the historic balance between operational needs and sustaining R&D investments.

**B. Accomplishments/Planned Program:**

| Cost ($ in thousands) | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|---|
| Unconventional Nuclear Warfare Defense* | 75.0 | 0 | 0 | 0 |

***Funding received in July 2002, FY 2003 plans will utilize FY 2002 funding**

**FY 2002 Accomplishments**

- Establish a UNWD test bed at Kirtland AFB, New Mexico. Demonstrate prototype system using available technology and exercise a concept of operations (CONOPS) for response.
- Prepare UNWD test beds at Naval Submarine Base Kings Bay, Georgia; Camp Lejeune, North Carolina; and Ft. Leonard Wood, Missouri for operation and demonstrations.

**FY 2003 Plans**

- Establish a UNWD test bed at Naval Submarine Base Kings Bay, Georgia. Refine and demonstrate prototype system using available technology and exercise a CONOPS for response.
- Establish a UNWD test bed at Camp Lejeune, North Carolina. Continue to refine and demonstrate prototype system using available technology and exercise a CONOPS for response.
- Establish a UNWD test bed at Ft. Leonard Wood, Missouri. Continue to refine and demonstrate prototype system using available technology and exercise a CONOPS for response.

  Note: The Department is currently in the process of reprogramming a portion of FY 2003 funding that was appropriated as O&M funding for this effort to the RDT&E appropriation.

**FY 2004 Plans** (This is a Congressionally-directed program; at this time no funds have been authorized or appropriated for FY 2004 and beyond.)

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers:** $25M of FY 2002 funding was provided to the National Nuclear Security Administration located in New Mexico in support of the Unconventional Nuclear Warfare Defense Program.